

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed October 29, 2003. The Examiner is thanked for his examination of the subject application. Claims 45, 49-50, 53, 57, 61-62, 65 and 69 have been amended. Claims 41, 45, 49-50, 53-63, 65-66 and 69 are pending.

I. OBJECTION UNDER 37 C.F.R. § 1.71/ REJECTION UNDER 35 U.S.C. §112 (FIRST PARAGRAPH)

As set forth in paragraph 2 of the Office Action, the specification is objected to under 37 C.F.R. § 1.71. Moreover, claims 41, 45, 49-50, 53-63, 65-66 and 69 were rejected under 35 U.S.C. §112 (first paragraph) for the same reasons set forth in the objection. Applicants respectfully disagree with the outstanding objection and §112 (first paragraph) rejection.

The Office Action features a number of inaccurate assumptions by the Examiner. We shall address these assumptions and, for the record, we traverse each and every assumption used as rationale for the objection under 37 C.F.R. § 1.71 and rejection under 35 U.S.C. §112 (first paragraph). In the future, if the Examiner has any questions regarding support for any limitation or reasons for amendment, he is invited to discuss the concern by contacting the undersigned attorney at the phone number listed below. Such discussions would facilitate prosecution of the subject application.

First, prior amendments to the pending claims do not acknowledge that the architecture described in the subject application is "different and did not support" the copied claims. This is an incorrect assumption that appears to be directed to prior amendments made in independent claim 41. Claim 41 and all other pending claims have been amended simply to expedite prosecution of the subject application. Such amendments should not be construed as an acknowledgement of any kind. Applicants have always, and continue to, contend that Claim 41 is fully supported by the subject application.

Furthermore, the Federal Circuit has essentially already determined that claim 41 is supported by the subject application. In *Akamai Tech., Inc. v. Cable & Wireless Internet Svs., Inc.*, 344 F.3d 1186, 68 U.S.P.Q.2d 1186 (Fed. Cir. 2003), the Federal Circuit held that the parent of the subject application (USP 6,185,598), which has a specification identical to the subject application, anticipated claims 1 and 3 of the '703 Patent.¹ As the Examiner has noted, claim 41 is substantially similar to, and in fact, is broader than claim 1 of the '703 Patent. Since the Federal Circuit has decided that the specification of the subject application contains each and every limitation set forth in claim 1 of the '703 Patent, and claim 41 substantially mimics claim 1 of the '703 Patent, it follows that the specification supports the limitations of claim 41 as well. The Examiner should strongly consider the findings of the Federal Circuit as ample evidence that the specification supports independent claim 41.²

¹ A copy of the Federal Circuit opinion is enclosed herewith as Appendix A for the Examiner's convenience.

² Though Examiner's task at hand is to assess the patentability of the invention without consideration of the likelihood that a declaration of interference would be required if the claims were allowed, Applicants note that since claims 1 and 3 of the '703 patent were found by the Federal Circuit to be anticipated by the '598 patent, those claims

Second, the broad method claims (claims 49, 53, 57, 61, 62, 65 & 69) were not written to operate on the architecture of the '703 Patent (USP 6,108,703). These claims make no reference to any particular architecture. Rather, these claims were drafted for Applicants to obtain the scope of protection that they were entitled to receive. As the Examiner is aware, a term in the preamble of a claim is not always considered a limitation on the scope of the claim. Rather, it depends on the intention of the limitation within the claims. *See Rowe v. Dror, 112 F.3d 473, 42 U.S.P.Q.2d 1550, 1553 (Fed. Cir. 1997)*. Applicants respectfully submit that the operations set forth in these claims are simply applicable to a system as set forth in the preamble of such claims.

Regardless of the incorrect assumptions set forth above, alleged architectural differences describe by the Examiner have no bearing on whether or not the written description and enablement requirements have been satisfied. The Examiner acknowledges this fact by focusing on certain limitations within the pending claims. We shall focus the remaining discussion on the Examiner's concerns pertaining to certain limitations within the claims and shall provide the Examiner with support (page, line numbers) for the limitations within the subject application. If the Examiner has any additional questions regarding support for any limitation, he is invited to contact the undersigned attorney at the phone number listed below.

Moreover, it is noted that Applicants have previously provided a claim chart illustrating support in the specification for each and every limitation set forth in the pending claims. The claim chart was provided with the prior amendment dated December 5, 2001. As stated in the claim chart, and repeated herein for clarity, Applicants respectfully submit that the claim chart is not intended to limit the claims in any way and is not intended to show the only support for the claims.

With respect to page 4 of the Office Action, it alleges that there is no support in the specification for the borrowed language "framework" set forth in claims 45, 49, 53, 57, 61, 62, 65 and 69. Applicants disagree because the term "framework" is synonymous with the term "system". As evidence of this fact, the '703 Patent describes the framework as featuring servers operating in a distributed manner. *See column 3, lines 4-5 of the '703 Patent*. Thus, with respect to claim 41, the term "framework" was previously substituted with the term "system." While no further amendments are required to overcome this objection, Applicants have amended claims 45, 49, 53, 57, 61, 62, 65 and 69 to substitute the term "framework" for "system". This amendment does not alter the scope of the claims, but rather offers a substitute term well known to the Examiner. Hence, Applicants respectfully request the Examiner to reconsider and withdraw this objection.

As further described on page 4, the Office Action alleges that claims 53, 61 and 62 include the limitation "managed by a domain other than an origin server domain." Applicants respectfully disagree with the allegation. For instance, on page 14, lines 13-18 of the subject application, a modified URL repeater domain is specified by the term "<repeater>" and the server domain is specified by the term "<server>," respectively. This explains why there may be

are no longer in the '703 patent. *See Akamai Technologies, Inc.*, 68 U.S.P.Q.2d at 1192. Consequently, allowing Claim 41 in the subject application should not require a declaration of an interference by the PTO.

only three usages of the exact wording "domain" in the subject application. As described in connection with replicating a set of page objects, namely replicating some or all of the information available to the origin server 102 as described on page 6, lines 16-18 of the subject application, the repeater servers (104a, 104b, 104c) are in a domain other than the origin server domain.

As described on page 5 of the Office Action, it is requested that Applicants point out exactly where in the specification there is support for the phrase "objects" (e.g., page objects, embedded objects). It is further alleged that the embedded object URL is modified and not the embedded object as set forth in claims 53, 61, 65 and 69. Applicants respectfully disagree with the Examiner.

As the Examiner is aware, a "page object" is an object embedded into a web page. An embedded object is a directive such as an embedded image...containing URL. *See Page 31, lines 8-9 of the specification.* A "resource" contains references to other resources, some or all of these references can be replaced by references to repeaters. *See page 4, lines 6-7 of the specification.* For instance, one type of resource is an HTML document (web page), i.e., whether the requested resource is one which itself contains resource identifiers. *See page 15, lines 9-12 of the specification.*

Since the URL is embedded, it is evident that modification of the URL does, in fact, constitute a modification of the embedded image (or web page). Since the embedded image is one type of resource, modification of the URL does modify the resource. While no amendments are required to overcome this objection, Applicants has amended claims 45, 49, 53, 57, 61, 62, 65 and 69 to substitute the term "resource" for "page object". Hence, based on the foregoing, Applicants respectfully request the Examiner to reconsider and withdraw this objection.

As further described on page 5 of the Office Action, Applicants respectfully disagree that there is no support for "different resource locator" or "resource locator" of claim 62 within the specification of the subject application. For instance, the specification of the subject application describes the operations performed for rewriting Uniform Resource Locators (URLs). As a result, there is support for resource locators. Moreover, the specification describes in detail the rewriting of the HTML resources. *See page 30 et seq. of the specification.* If a URL is modified, it is considered to be a "different resource locator," and thus, this limitation is supported by the specification of the subject application.

Based on the foregoing, Applicants respectfully request the Examiner to reconsider and withdraw this objection.

As further described on page 5 of the Office Action, the Examiner has concerns regarding the limitation "designate the repeater server network" set forth in claim 57. In response, Applicants has amended claim 57 to substitute the phrase "designate the repeater server network" with the phrase "resolve to a repeater server within the repeater server network." *See Page 46, lines 24-27 of the specification.* Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this objection.

As also described on page 5 of the Office Action, the operation of identifying is performed in the repeater server selector and allegedly is not in sync [sic] with the operations set forth in claim 49. Applicants respectfully submit that the identifying operation of claim 49 does not indicate what component performs this operation. Thus, it is consistent with the claims that the repeater server selector to perform this operation, although it is contemplated that the operations may be performed by other components as well. Applicants respectfully request the Examiner to reconsider and withdraw this objection.

As described on page 6 of the Office Action, Applicants respectfully disagree with the objection. The Internet operates based on information being requested (pulled), not simply supplied (pushed) absent some form of request. No essential omitted limitations has been excluded from the subject claim; rather, claim 41 is directed to a particular aspect of the communications to which Applicants are entitled to seek protection. Thus, Applicants respectfully request the Examiner to reconsider and withdraw this objection.

With respect to the comment of the "ongoing problems with the copied language," Applicants refer the Examiner to the claim chart provided with the prior amendment dated December 5, 2001, which illustrates some available support for the claims. This claim chart fully addresses the Examiner's concerns. However, if the Examiner has any additional questions, he is invited to contact the undersigned attorney at the phone number listed below.

Based on the foregoing discussions, Applicants respectfully request the Examiner to withdraw the objections pertaining to 37 C.F.R. § 1.71 as well as the corresponding rejection under 35 U.S.C. § 112, first paragraph.

II. REJECTION UNDER 35 U.S.C. §112 (SECOND PARAGRAPH)

As set forth in paragraph 4 of the Office Action, claims 41, 45, 49-50, 53-63, 65-66 and 69 were rejected under 35 U.S.C. §112 (second paragraph) based on a request that the elements in the preamble be properly linked to the elements of the body. Applicants respectfully traverse the rejection. The preamble is designed to limit the operations of the claim to a particular architecture of a system. Applicants are entitled to seek such protection.

As the Examiner is aware, there are two separate requirements set forth in 35 U.S.C. §112 (second paragraph): (1) the claims must set forth the subject matter that applicants regard as their invention; and (2) the claims must particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant. *See MPEP § 2171*.

With respect to the first requirement, Applicants respectfully submit that the operations of the claims are confined to a particular architecture for a system. No patentable distinction between the operations of different components is sought at this time. With respect to the second requirement, the operations are clear without limiting the claim as to include which components perform which operations. The breadth of a claim should not to be equated with indefiniteness. *See In re Miller, 441 F.2d 689, 169 U.S.P.Q. 597 (CCPA 1971)*. Applicants respectfully submit that the scope and content of the claim is clear to a person of ordinary skill in the pertinent art and withdrawal of the outstanding §112 (second paragraph) rejection is warranted.

III. REJECTION UNDER 35 U.S.C. §103(A)

Claims 49-50, 53-54, 57-59, 62, 65-66 and 69 are rejected under 35 U.S.C. §103(a) as being unpatentable over Graber (USP 5,712,979). Applicants respectfully traverse the rejection because a *prima facie* case of obviousness has not been established.

When evaluating a claim to determine obviousness, all limitations of the claim must be evaluated. *See In re Fine*, 873 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Herein, certain limitations of these claims have not been fully evaluated. Moreover, the Examiner is reminded that the mere fact that a reference can be combined or modified does not render the claimed invention obvious unless the prior art suggests the desirability of the modification. *See In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990).

Herein, Graber does not describe or even suggest the operation of either modifying an embedded object or an embedded object URL, which are limitations set forth in independent claims 53, 57, 65 and 69. The only modification shown by Graber is to the path associated with a link URL. Graber is devoid of any teaching or suggestion to modify any embedded object or embedded object URL as explicitly claimed. Moreover, there is no teaching or suggestion for the modification of any URL to refer to a different computer (or domain) as also set forth in independent claims 49 and 62.

Moreover, it would not have been obvious to modify the teachings of Graber to be applicable to embedded objects (or embedded object URLs) because Graber is modifying URLs in order to maintain path history. There is no reason to maintain any path history for embedded objects.

In light of the foregoing, Applicants respectfully request the Examiner to withdrawal the outstanding §103(a) rejection.

Conclusion

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 04/29/04

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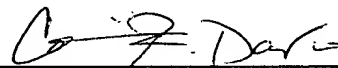
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Corrin R. Davis

04/29/04

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Appl. No. 09/612,598
Amqt. Dated 04/29/04
Reply to Office action of 10/29/03

Appendix – Copy of 68 U.S.P.Q.2d 1186 (Fed. Cir. 2003)

infringement is established, the ruling that Dow did not carry its burden to establish damages was erroneous.

AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, and REMANDED

COSTS

No costs.

Akamai Technologies Inc. v. Cable & Wireless Internet Services Inc.

U.S. Court of Appeals
Federal Circuit

No. 03-1007

September 15, 2003

PATENTS

[1] Patentability/Validity — Construction of claims (§ 115.03)

Patentability/Validity — Anticipation — Identity of elements (§ 115.0704)

Patent claim directed to Internet "global hosting system," in which Web page content is delivered to users from separate sets of servers for greater efficiency, does not require placement of "load balancing" software at domain name service servers, and is therefore anticipated by prior art patent, since plain meaning of disputed "identifying" claim language, which states that "the embedded object identified by the modified embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers," does not require any load balancing mechanism, and since neither written description nor prosecution history unequivocally shows that inventors intended "identifying" to include load balancing; redundant second level DNS server required by second independent claim does not save that claim from anticipation, since hierarchical DNS is inherent in any Internet system.



Siritzky, of Pillsbury, Winthrop, McLean, Va. and Palo Alto, Calif.; Eileen M. Hearlthy and John T. Bennett, of Palmer & Dodge, Boston, Mass., for defendant-appellant.

Before Newman, Gajarsa, and Dyk, circuit judges.

Gajarsa, J.

Defendant-Appellant, Cable & Wireless Internet Services, Inc. ("C&W"), appeals the orders of the United States District Court for the District of Massachusetts: (1) denying C&W's motion for judgment as a matter of law challenging the jury verdict that claims 1, 3, 5, and 9 of U.S. Patent No. 6,108,703 ("the '703 patent") are valid and infringed; and (2) granting a permanent injunction based upon the jury verdict. *Akamai Techs., Inc. v. Cable & Wireless Internet Serv., Inc.*, No. 00-CV-11851 (D. Mass. May 24 and Aug. 21, 2002). Because claims 1 and 3, properly construed, are anticipated by U.S. Patent No. 6,185,598 ("the '598 patent") and are therefore invalid under 35 U.S.C. § 102, we reverse the district court's denial of C&W's motion for judgment as a matter of law with respect to claims 1 and 3 and vacate that portion of the permanent injunction. We affirm the district court's denial of C&W's motion for judgment as a matter of law with respect to claims 5 and 9 because those claims, properly construed, are not invalid. We also affirm the district court's denial of C&W's motion for judgment as a matter of law with respect to infringement of claim 9 because substantial evidence supports the jury's verdict of infringement. In view of our holding, we remand to the district court to review the scope of the permanent injunction.



Particular patents — Electrical — Internet global hosting system

6,108,703, Leighton and Lewin, global hosting system, judgment that claims 1 and 3 are not invalid vacated; judgment of infringement as to claims 5 and 9 affirmed.

Appeal from the U.S. District Court for the District of Massachusetts, Zobel, J.

Action by Akamai Technologies Inc. and Massachusetts Institute of Technology against Cable & Wireless Internet Services Inc. and Kinetech Inc. for patent infringement. Jury in district court determined that defendant Wireless Internet Services Inc. infringed certain claims, and found others invalid. Defendant appeals from denial of its motion for judgment as matter of law, and from entry of permanent injunction. Affirmed in part, reversed in part, and remanded; Newman, J., concurring in part and dissenting in part in separate opinion.

Mark T. Banner, Pamela B. Krupka, and Aimee M. Boss, of Banner & Witcoff, Chicago, Ill. and Washington, D.C., for plaintiffs-appellees.

Arthur B. Wineburg, Susan T. Brown, Daniel E. Yonan, Brian J. Beatus, and Brian

address, or uniform resource locator ("URL"). The URL is typically a string of characters, e.g., www.fedcir.gov. This URL has a corresponding unique numerical address, e.g., 156.119.80.10, called an Internet Protocol ("IP") address. When a user enters a URL into the browser, a domain name service ("DNS") searches for the corresponding IP address to properly locate the web page to be displayed. The DNS is administered by a separate network of computers distributed throughout, and connected to, the Internet. These computers are commonly referred to as DNS servers. In short, a DNS server translates the URL into the proper IP address, thereby informing the user's computer where the host server for the web page www.fedcir.gov is located, a process commonly referred to as "resolving." The user's computer then sends the web page request to the host server, or origin server. An origin server is a computer associated with the IP address that receives all web page requests and is responsible for responding to such requests. In the early stages of the Internet, the origin server was also the server that stored the actual web page in its entirety. Thus, in response to a request from a user, the origin server would provide the web page to the user's browser. Internet congestion problems quickly surfaced in this system when numerous requests for the same web page were received by the origin server at the same time.

This problem is exacerbated by the nature of web pages. A typical web page has a Hypertext Markup Language ("HTML") base document, or "container" document, with "embedded objects" such as graphics files, sound files, and text files. Embedded objects are separate digital computer files stored on servers that appear as part of the web page. These embedded objects must be requested from the origin server individually. Thus, each embedded object often has its own URL. To receive the entire web page, including the container document and the embedded objects, the user's web browser must request the web page and each embedded object. Thus, for example, if a particular web page has nine embedded objects, a web browser must make ten requests to receive the entire web page: one for the container document and nine for the embedded objects.

There have been numerous attempts to alleviate Internet congestion, including methods

I. BACKGROUND

The present appeal concerns technology for alleviating Internet congestion. To better understand the present dispute, a general overview of the relevant technology follows. Generally, people share information, i.e., "content," over the Internet through web pages. To look at web pages, a computer user accesses the Internet through a browser, e.g., Microsoft Internet Explorer® or Netscape Navigator®. These browsers display web pages stored on a network of servers commonly referred to as the Internet. To access the web pages, a computer user enters into the browser a web page



commonly referred to as "caching." "Mirroring," and "redirection." "Caching" is a solution that stores web pages at various computers other than the origin server. When a request is made from a web browser, the cache computers intercept the request, facilitate retrieval of the web page from the origin server, and simultaneously save a copy of the web page on the cache computer. The next time a similar request is made, the cache computer, as opposed to the origin computer, can provide the web page to the user. "Mirroring" is another solution, similar to caching, except that the origin owner, or a third party, provides additional servers throughout the Internet that contain an exact copy of the entire web page located on the origin server. This allows a company, for example, to place servers in Europe to handle European Internet traffic.

"Redirection" is yet another solution in which the origin server, upon a request from a user, redirects the request to another server to handle the request. Redirection also often utilizes a process called "load balancing," or "server selection." Load balancing is often effected through a software package designed to locate the optimum origin servers and alternate servers for the quickest and most efficient delivery and display of the various container documents and embedded objects. Load balancing software locates the optimum server location based on criteria such as distance from the requesting location and congestion or traffic through the various servers.

Load balancing software was also known prior to the '703 patent. For example, Cisco Systems, Inc. marketed and sold a product by the name of "Distributed Director," which included server selection software that located the optimum server to provide requested information. The server selection software could be placed at either the DNS servers or the content provider servers. The Distributed Director product was disclosed in a White Paper dated February 21, 1997 and in U.S. Patent No. 6,178,160 ("the '160 patent"). Both the White Paper and the '160 patent are prior art to the '703 patent. The Distributed Director product, however, utilized this software in conjunction with a mirroring system in which a particular provider's complete web page was simultaneously stored on a number of servers located in different locations throughout the Internet. Mirroring had many drawbacks, in-

cluding the need to synchronize continuously the web page on the various servers throughout the network. This added extra expenses and contributed to congestion on the Internet.

Massachusetts Institute of Technology is the assignee of the '703 patent directed to a "global hosting system" and methods for decreasing congestion and delay in accessing web pages on the Internet. Akamai Technologies, Inc. is the exclusive licensee of the '703 patent.¹ The '703 patent was filed on May 19, 1999, and issued on August 22, 2000. The '703 patent discloses and claims web page content delivery systems and methods utilizing separate sets of servers to provide various aspects of a single web page: a set of content provider servers (origin servers), and a set of alternate servers. The origin servers provide the container document, i.e., the standard aspects of a given web page that do not change frequently. The alternate servers provide the often changing embedded objects. The '703 patent also discloses use of a load balancing software package to locate the optimum origin servers and alternate servers for the quickest and most efficient delivery and display of the various container documents and embedded objects.

Independent claim 1, which is representative, reads:

1. A distributed hosting framework operative in a computer network in which users of client machines connect to a content provider server, the framework comprising:

a routine for modifying at least one embedded object URL of a web page to include a hostname pretended to a domain name and path;

a set of content servers, distinct from the content provider server, for hosting at least some of the embedded objects of web pages that are normally hosted by the content provider server;

at least one first level name server that provides a first level domain name service (DNS) resolution; and

at least one second level name server that provides a second level domain name service (DNS) resolution;

¹ For purposes of this opinion both plaintiffs are collectively referred to as "Akamai."

wherein in response to requests for the web page, generated by the client machines the web page including the modified embedded object URL is served from the content provider server and the embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers.

'703 patent, col. 17, ll. 17-37 (emphases added).

C&W is the owner, by assignment, of the '598 patent. The '598 patent is directed to similar systems and methods for increasing the accessibility of web pages on the Internet. The '598 patent was filed on February 10, 1998, and issued on February 6, 2001. Thus the '598 patent is prior art to the '703 patent pursuant to 35 U.S.C. § 102(e).² C&W marketed and sold products embodying the '598 patent under the name "Footprint." The relevant difference between the disclosure of the '598 patent and Akamai's preferred embodiment disclosed in the '703 patent is the location of the load balancing software. Akamai's preferred embodiment has the load balancing software installed at the DNS servers, while the '598 patent discloses installation of the load balancing software at the content provider, or origin, servers. The '598 patent does not disclose or fairly suggest that the load balancing software can be placed at the DNS servers. It is now understood that placement of the software at the DNS servers allows for load balancing during the resolving process, resulting in a more efficient system for accessing the proper information from the two server networks. Indeed, C&W later created a new product, "Footprint 2.0," the systems subject to the permanent injunction, in which the load balancing software was installed at the DNS servers as opposed to the content provider servers. Footprint 2.0 replaced C&W's Footprint product.

On September 13, 2000, Akamai sued C&W seeking an injunction and damages for infringement of the '703 patent. Among other things, Akamai asserted that C&W's Footprint 2.0 content delivery network infringed apparatus claims 1, 3, 5, and 9 and method claims 17, 18, and 22 of the '703 patent.

² Akamai does not dispute that the '598 patent is "prior art" to the '703 patent for purposes of validity under 35 U.S.C. § 102 or § 103.

C&W answered the Complaint alleging that Footprint 2.0 did not infringe the claims of the '703 patent and that the claims of the '703 patent were invalid under 35 U.S.C. §§ 102 and 103(a). In particular, C&W asserted that the '598 patent anticipated the asserted claims and that the asserted claims were obvious in light of the '598 patent in combination with Cisco's Distributed Director product.

The district court conducted a *Markman* hearing and entered its order construing the disputed terms of the '703 patent (as well as two other patents that are not at issue in this appeal). The district court stated that "[a]t the time of the *Markman* hearing, the parties did not appear to have a common understanding as to which additional claims were still in dispute. The parties' written and oral presentations offer little assistance in this regard. I therefore limit my ruling to the terms above." Notably, the parties did not appear to dispute the construction of any terms in the "wherein" clause of claim 1.

After a 19-day jury trial, the jury determined that C&W infringed apparatus claims 1, 3, 5, and 9 and method claims 17, 18, and 22. The jury upheld the validity of apparatus claims 1, 3, 5, and 9. The jury invalidated claims 17, 18, and 22 under 35 U.S.C. §§ 102 and 103(a) as either anticipated by the '598 patent or obvious in light of the '598 patent in view of Cisco's Distributed Director product. C&W filed its motion for judgment as a matter of law in February 2002 asserting that claims 1, 3, 5, and 9 were invalid and/or not infringed. The district court denied that motion and permanently enjoined C&W from "making, using, selling, offering for sale, or importing into the United States the patented inventions claimed in claims 1, 3, 5, and 9 of the '703 patent," in an Order that "extended to Footprint 2.0 service, as configured and described at trial."

C&W appealed the denial of its motion for judgment as a matter of law and the district court's entry of a permanent injunction on the bases that claim 9 was not infringed and that claims 1, 3, 5 and 9 were invalid for anticipation and/or obviousness. C&W did not appeal the infringement of claims 1, 3, and 5. We have jurisdiction over this appeal pursuant to 28 U.S.C. §§ 1292(a), (c)(1), and 1295(a)(1).

II. DISCUSSION

We review the denial of a motion for judgment as a matter of law following a jury verdict by reapplying the district court's standard of review. *Catalina Lighting, Inc. v. Lamps Plus, Inc.*, 295 F.3d 1277, 1284 [63 USPQ2d 1545] (Fed. Cir. 2000); *Stryker Corp. v. Davol, Inc.*, 234 F.3d 1252, 1257 [57 USPQ2d 1133] (Fed. Cir. 2000); *Tec Air, Inc. v. Denso Mfg.*, 192 F.3d 1353, 1357 [52 USPQ2d 1294] (Fed. Cir. 1999). Thus, we review claim construction, an issue of law, *de novo*. *Sibia Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1354 [55 USPQ2d 1927] (Fed. Cir. 2000).

With regard to factual findings, we must presume that the jury resolved all factual disputes in favor of the prevailing party, and we must leave those findings undisturbed as long as they are supported by substantial evidence. *Id.* A factual finding is supported by substantial evidence if a reasonable jury could have found in favor of the prevailing party in light of the evidence presented at trial. *Tec Air*, 192 F.3d at 1358. "Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938). Thus, substantial evidence review involves an examination of the record as a whole, taking into consideration evidence that both justifies and detracts from the decision of the fact-finder. *In re Gartside*, 203 F.3d 1305, 1312 [53 USPQ2d 1769] (Fed. Cir. 2000); *Nat'l Presto Indus., Inc. v. W. Bend Co.*, 76 F.3d 1185, 1192 [37 USPQ2d 1685] (Fed. Cir. 1996) (holding that a jury verdict must be sustained if it is supported by substantial evidence based on a review of the entirety of the record). In reviewing the record, we must draw all reasonable inferences in favor of the prevailing party, and not make credibility determinations or substitute our view of the conflicting evidence for that of the jury. *Sibia, Roebuck & Co.*, 222 F.2d 1542, 1546 [220 USPQ 193] (Fed. Cir. 1983). If, however, after reviewing all of the evidence in a light most favorable to the prevailing party, this court is convinced that a reasonable jury could not have found in that party's favor, we must reverse the denial of a motion for judgment as a matter of law. *Id.*

A. Anticipation

C&W appeals the jury finding that claims 1 and 3 were valid as not anticipated by the disclosure of the '598 patent. The first step in an invalidity analysis is claim construction, an issue of law this court reviews *de novo*. *Cybor Corp. v. FAS'Techs, Inc.*, 138 F.3d 1448, 1456 [46 USPQ2d 1169] (Fed. Cir. 1998) (*en banc*). The second step, determining whether a prior art reference discloses each and every limitation of the claim expressly or inherently, *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576-77 [18 USPQ2d 1001] (Fed. Cir. 1991), is a factual question reviewed for substantial evidence. *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1343 [66 USPQ2d 1271] (Fed. Cir. 2003). This factual question is contingent upon the proper claim construction. *Id.* at 1344. A claim limitation is inherent in the prior art if it is necessarily present in the prior art, not merely probably or possibly present. *Rosco v. Mirror Lite*, 304 F.3d 1373, 1380 [64 USPQ2d 1676] (Fed. Cir. 2002). "[T]he dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from the prior art reference's teaching that every claim [limitation] was disclosed in that single reference." *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 [66 USPQ2d 1801] (Fed. Cir. 2003) (internal quotation marks and alterations omitted).

Through trial and on appeal, the parties have narrowed the disputed issues of validity to a single point of contention—the placement of the load balancing software at either the DNS servers or the origin server. Therefore, our initial focus in the anticipation analysis is on the construction of claims 1 and 3, in particular whether claims 1 and 3 require the presence of load balancing software at the DNS servers. The issue before us is thus a relatively self-contained one. On the one hand, if claims 1 and 3 require load balancing at the DNS servers, the claims are not anticipated. On the other hand, if the claims do not require this limitation, they are anticipated by the '598 patent. The only disputed limitation of claims 1 and 3 reads:

wherein in response to requests for the web page, generated by the client machines the web page including the modified embedded object URL is served from the content pro-

vider server and the embedded object identified by the modified embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers.

'703 patent, col. 17, ll. 31-37 (emphases added).

Claim 3 is dependent upon independent claim 1 and includes the following additional limitation.

3. The hosting framework as described in claim 1 further including a redundant second level name server.

Id., col. 17, ll. 40-41.

Akamai contends that the '598 patent differs from claims 1 and 3 of the '703 patent in the placement of the load balancing software. Indeed, in its brief on appeal, Akamai stated:

The significant difference between the prior art '598 patent and the '703 patent claims on appeal was *acknowledged and admitted* by everyone throughout the trial.... In particular, C&W counsel told the jury the difference involves the fact that selection of the best computer server to deliver the embedded objects of the web page is done in the '598 prior art patent by "software... located at the origin server" whereas selection of the best computer server to deliver the content is done in the '703 patent "by software located at the DNS...."

C&W argues that the location of the load balancing software is not a limitation in claims 1 and 3, and in the alternative, that while the '598 patent does not explicitly disclose the placement of load balancing software at the DNS servers, it is nevertheless inherent in the Internet and the '598 patent.

[1] We agree that claims 1 and 3 do not include a load balancing limitation. While the written description unquestionably contemplates the preferred location of the load balancing software, claims 1 and 3 do not expressly require its presence. To support its reading of independent claim 1, Akamai points only to the term "identifying" in the "wherein" clause of claim 1 which states:

wherein in response to requests for the web page, generated by the client machines the web page including the modified embedded object URL is served from the content provider server and the embedded object identified by the modified embedded object URL

is served from a given one of the content servers as identified by the first level and second level name servers.

This language, however, requires only that the embedded object is "identified by the modified embedded object URL" and is "served from a given one of the content servers as identified by the first and second level name servers." The plain meaning of the claim language does not require any load balancing mechanism. Instead, it simply requires the embedded object to be served from "the content servers as identified by the first level and second level name servers." Load balancing, if required at all, could be at either the DNS servers or the content provider server. The ordinary meaning of the term "identifying" in claims 1 and 3 covers standard DNS resolution, without any sort of load balancing. Absent evidence that a "patentee unequivocally imparted a novel meaning to [the] term[]" or expressly relinquished claim scope during prosecution, we give the limitation its full ordinary and customary meaning. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 [67 USPQ2d 1321] (Fed. Cir. 2003); *Teleflex, Inc. v. Ficonsa N.Am. Corp.*, 299 F.3d 1313, 1325-26 [63 USPQ2d 1374] (Fed. Cir. 2002); *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366-67 [62 USPQ2d 1658] (Fed. Cir. 2002); *Renishaw PLC v. Marposs Societa' Per Azioni*, 158 F.3d 1243, 1249 [48 USPQ2d 1117] (Fed. Cir. 1998) ("Absent a special and particular definition created by the patent applicant, terms in a claim are to be given their ordinary and accustomed meaning.")

The only question that remains is whether the written description or the prosecution history unequivocally shows that the inventors imparted a novel meaning to the term "identifying" to include load balancing. *Omega Eng'g*, 334 F.3d at 1323; *Teleflex*, 299 F.3d at 1325-26. The written description does not specifically define the term "identifying." Rather, the discussion with respect to load balancing focuses on the DNS servers as performing "special function[s]," e.g., load balancing functions, without any reference to the term "identifying." See, e.g., '703 patent, col. 9, ll. 31-48. Similarly, the parties have pointed to nothing in the prosecution history with respect to the term "identifying." Akamai's only evidence that supports its special definition of the term "identifying" is the testimony of one of

the inventors, Mr. Farber, of the '598 patent. Mr. Farber stated that: "the DNS in our system are a little different because we did the step of identifying . . . which repeater should be used by the browser as part of the, using [sic] the HTTP method instead of the DNS method."³ This extrinsic evidence is not the unequivocal evidence, *Omega Eng'g*, 334 F.3d at 1323, indicating the term "identifying" should take anything other than its ordinary and accustomed meaning. While this possibly suggests that the inventors believed the "identifying" step included a load balancing function, "what the patentee subjectively intended his claims to mean is largely irrelevant to the claim's objective meaning and scope." *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1379 [55 USPQ2d 1279] (Fed. Cir. 2000). It is also not testimony that clearly supports the proposition that the term "identifying" has a special meaning to one of ordinary skill in the art.

Thus claim 1, as properly construed, does not include the limitation of the placement of the load balancing mechanism. The parties agree that the '598 patent discloses all the remaining limitations of claim 1. Because claim 1 does not require exact placement, it is therefore invalid as anticipated by the '598 patent.

Claim 3 similarly does not require placement of the load balancing software at the DNS servers. Claim 3 only includes the additional limitation that the hosting framework as described in claim 1 further includes "a redundant second level name server." On appeal, Akamai's primary argument echoes that of claim 1, namely that the load balancing software is located at the DNS servers. Akamai's only separate argument with respect to claim 3 is that "[b]ecause [the] '598 patent did not even mention hierarchical DNS (i.e., more than one level), clearly the jury was entitled to reject the notion that [the] '598 [patent] also anticipated claim 3." This additional argument, however, fails to address C&W's contention that hierarchical DNS is inherent in any Internet system. Indeed, C&W proffered documentary evidence and testimony at trial that redundant domain name servers are inherent in any Internet-based application. See

Dayco, 329 F.3d at 1369. Akamai points to no evidence whatsoever that contradicts the evidence presented to the jury at trial. Accordingly, we hold that any inference in favor of Akamai relating to the redundant second level server in claim 3 is unsupported by substantial evidence. The addition of a redundant second level DNS server does not save the validity of dependent claim 3. Claim 3 is therefore also invalid under 35 U.S.C. § 102 as anticipated by the '598 patent.⁴

B. Obviousness

C&W next claims that it is entitled to judgment as a matter of law that claims 5 and 9 are obvious in light of the '598 patent in combination with Cisco's Distributed Director product and are therefore invalid.⁵ Claims 5 and 9, which are dependent on independent claim 1, include the following additional limitations.

5. The hosting framework as described in claim 1 wherein the second level name server includes a load balancing mechanism that balances loads across a subset of the set of servers.
9. The hosting framework as described in claim 1 wherein the first level name server includes a network map for use in directing a request for the embedded object generated by a client.

We review the ultimate determination of obviousness *de novo*. *Modine Mfg. Co. v. Allen Group, Inc.*, 917 F.2d 538, 541 [16 USPQ2d 1622] (Fed. Cir. 1990). This ultimate determination, however, requires underlying factual findings, which this court reviews to determine whether they are supported by substantial evidence and, if they are, whether those findings support the legal conclusions which necessarily were drawn by the jury in forming its verdict. *Id.* A claimed invention is

⁴ Judge Newman in her dissent specifically points out that the issue of anticipation is a question of fact. Claim construction, however, is a question of law. Before the factual question of anticipation may be addressed, a court must first properly construe the claims before it. Here, claims 1 and 3 were not properly construed by the district court. Therefore, a necessary first step in this court's anticipation inquiry was to properly construe the claims at issue.

⁵ C&W also challenges the validity of claims 1 and 3 under the same obviousness theory. Because we hold that claims 1 and 3 are anticipated by the '598 patent, we need not reach this argument.

unpatentable due to obviousness if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (2000). While the ultimate conclusion of obviousness is for the court to decide as a matter of law, several factual inquiries underlie this determination. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 [148 USPQ2d 459] (1966). These inquiries include the scope and content of the prior art, the level of ordinary skill in the field of the invention, the differences between the claimed invention and the prior art, and any objective evidence of nonobviousness such as long-felt need and commercial success. *Id.* When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references. *In re Geiger*, 815 F.2d 686, 688 [2 USPQ2d 1276] (Fed. Cir. 1987). Although the suggestion to combine references may flow from the nature of the problem, *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 [37 USPQ2d 1626] (Fed. Cir. 1996), the suggestion more often comes from the teachings of the pertinent references. *In re Sernaker*, 702 F.2d 989, 994 [217 USPQ 1] (Fed. Cir. 1983), or from the ordinary knowledge of those skilled in the art that certain references are of special importance in a particular field. *Pro-Mold*, 75 F.3d at 1573 (citing *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n.24 [227 USPQ 657] (Fed. Cir. 1985)). Therefore, "[w]hen determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *In re Beattie*, 974 F.2d 1309, 1311-12 [24 USPQ2d 1040] (Fed. Cir. 1992) (quoting *Lindemann Maschinenfabrik GMBH v. Am. Hoist & Derrick Co.*, 730 F.2d 1452, 1462 [221 USPQ 481] (Fed. Cir. 1984)).

[2] To prevail, C&W must therefore show that no reasonable jury could have found claims 5 and 9 nonobvious in light of the evidence presented. *Tec Air*, 192 F.3d at 1358.

Here, C&W has not met this burden. Namely, we are unable to discern any suggestion or motivation to combine the references as C&W

suggests in the record before us. Indeed, when pressed on this issue at oral argument, C&W could point only to Cisco's Distributed Director product, which at best disclosed that load balancing software could be placed at either the DNS servers or the origin servers for a "mirroring" system. In its brief, C&W pointed to the fact that the '598 patent, the '703 patent, and Cisco's Distributed Director product all address the same problem: Internet congestion.

Our review of the evidence presented to the jury does not persuade us that no reasonable jury could have found claims 5 and 9 nonobvious over the prior art, and we decline to disturb the factual findings of the jury. Drawing all factual inferences in favor of Akamai, we affirm the jury's verdict with respect to the validity of claims 5 and 9 because there was no suggestion or motivation to combine the references.

Additionally, the record contains substantial evidence relating to secondary considerations supporting the jury's verdict. In particular, the record shows that C&W expended significant effort to determine how Akamai's products worked. Once it was determined that Akamai placed the server selection software at the DNS servers, C&W redesigned its Footprint product, abandoning the embodiments in the '598 patent. The new Footprint 2.0 design incorporated Akamai's placement of the load balancing mechanism at the DNS server. This evidence of copying is relevant to an obviousness determination. See *Advanced Display Sys., Inc. v. Kent State Univ. Kent State University*, 212 F.3d 1272, 1285 [54 USPQ2d 1673] (Fed. Cir. 2000); *Vandenberg v. Dairy Equip. Co.*, 740 F.2d 1560, 1567 [224 USPQ 195] (Fed. Cir. 1984) ("The copying of an invention may constitute evidence that the invention was not an obvious one. . . . This would be particularly true where the copyist had itself attempted for a substantial length of time to design a similar device, and had failed."). C&W's redesign process was documented in the record in internal emails from C&W engineers discussing Akamai's approach, identifying weaknesses in C&W's approach, and ultimately deciding to switch to the Akamai system.

In sum, C&W has not shown that the jury's conclusion that claims 5 and 9 of the '703 patent are nonobvious under 35 U.S.C.

§ 103(a) is unsupported by substantial evidence. Accordingly, we hold that claims 5 and 9 of the '703 patent are not obvious in light of the '598 patent in view of Cisco's Distributed Director product, and therefore affirm the district court's ruling denying C&W's motion for judgment as a matter of law and affirm the grant of a permanent injunction against C&W with respect to claims 5 and 9.

C. Infringement of Claim 9

Having addressed validity of the various claims of the '703 patent, we next turn to the jury's finding of infringement with respect to dependent claim 9. We review the record as a whole to determine whether substantial evidence exists to support the jury's finding that claim 9 is infringed. C&W objects to the jury verdict based on the fact that Dr. Bustavros's expert report was limited to infringement under the doctrine of equivalents. Akamai counters with cites to the testimony of Dr. Bustavros, who testified that C&W's Footprint 2.0 system included a network map routine and therefore infringed claim 9, without any reference to a limitation under the doctrine of equivalents. This dispute appears to be one of interpretation and weight of a witness's testimony—one for the jury to resolve. This court generally does not tread on the jury's role in making these determinations. Thus, we affirm the jury's finding of infringement of claim 9 as supported by substantial evidence, namely Dr. Bustavros's testimony at trial.

III. CONCLUSION

For the foregoing reasons, we hold that claims 1 and 3 of the '703 patent are anticipated by the '598 patent and are invalid pursuant to 35 U.S.C. § 102. We therefore reverse the district court's denial of C&W's motion for judgment as a matter of law with respect to the validity of claims 1 and 3, and instruct the district court to modify the permanent injunction accordingly. We also affirm the district court's denial of C&W's motion for judgment as a matter of law with respect to claims 5 and 9 and therefore affirm the district court's issuance of the permanent injunction with respect to those claims. We remand to the district court to review and redetermine the scope of the permanent injunction.

AFFIRMED-IN-PART, REVERSED-IN-PART AND REMANDED.

IV. COSTS

No costs.

Newman, J., concurring in part, dissenting in part.

I concur in much of the court's decision. However, the court provides no sufficient basis for overturning the findings of the jury and with respect to the question of anticipation of claims 1 and 3.

The issue of anticipation is a question of fact, and the jury verdict that there is not anticipation must be sustained if there is substantial evidence in its support. It is not disputed that the prior art (the defendant's '598 patent) does not disclose and does not embody the DNS lookup of the Akamai '703 patent. There was extensive evidence, presented by both sides, as to the content of the prior art; there was substantial evidence that the prior art's origin server "reflector" is a different structure and method, and that the subject matter of claims 1 and 3 does not read on the prior art. If there were any question concerning claims 1 and 3, the question would be one of obviousness; not anticipation. The jury verdict that these claims were not anticipated was supported by substantial evidence, with a lengthy and thorough and fully presented trial, and a verdict that could have been reached by a reasonable jury. The criteria of reversal are not met.

Akamai correctly points out that the defendant makes no effort to discuss the support, or lack thereof, for the jury verdict. My colleagues on this panel commit the same error, for the majority opinion says not a word about the evidence at trial, but simply decides the question for itself. Reversal of the judgment rendered on a jury verdict is appropriate only if there is no legally sufficient evidentiary basis for the verdict. See Fed. R. Civ. P. 50(a)(1); *Intercity Maintenance Co. v. Local 254, Service Employees International Union*, 241 F.3d 82, 86 (1st Cir. 2001); *National Presto Industries, Inc. v. West Bend Co.*, 76 F.3d 1185, 1192 [37 USPQ2d 1685] (Fed. Cir. 1996).

The sufficiency of the evidence must be reviewed in the light most favorable to the party

I respectfully dissent.

In re Microsoft Corp.

U.S. Patent and Trademark Office
Trademark Trial and Appeal Board

Serial No. 78/013678

Decided September 11, 2003

TRADEMARKS AND UNFAIR TRADE PRACTICES

[1] Infringement; conflicts between marks — Likelihood of confusion — Particular marks — Confusion likely (§ 335.0304.03)

Analysis of similarities between applicant's "OFFICE.NET" mark and registered mark "OFFICENET," for computer hardware and software products, must focus on average consumer of such products, rather than on technology-savvy information technology professional, since neither applicant's nor registrant's identification of goods limits products to particular channels of trade or classes of consumers; confusion would be likely among consumers if marks were contemporaneously used for identified goods, since marks will be perceived as virtually identical by average purchaser, and are likely to be verbalized in exactly same manner by many consumers.

[2] Registration and its effects — Non-registrable subject matter — Descriptive; deceptively misdescriptive (§ 315.0407)

Types of marks — Descriptive — Particular marks (§ 327.0303)

Applicant's "OFFICE.NET" mark is merely descriptive of applicant's computer hardware and software products, since record shows that "office" is term used in dictionaries and by applicant's competitors to describe particular types of software, and applicant has provided no evidence that term is recognized as mark by average consumer, since ".net" or ".NET" designates top level domain, and applicant has not shown that average consumer would perceive ".NET" in its mark as brand name rather than capitalized TLD, since there is nothing in combination of descriptive term

that received the verdict, with all reasonable inferences drawn in favor of the verdict. *Sheils Tile Co. v. Commonwealth Land Title Insurance Co.*, 184 F.3d 10, 19 (1st Cir. 1999); *Sibia Neurosciences, Inc. v. Cadus Pharmaceutical Corp.*, 225 F.3d 1349, 1355 [55 USPQ2d 1927] (Fed. Cir. 2000). It was not disputed, indeed it was admitted by C&W, that the prior art did not show either the claim 1 limitation that the content server is "distinct from the content provider server" (clause 3 of claim 1) or that "the embedded object identified by the modified embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers" (sixth clause of claim 1). Even C&W's technical expert Dr. Dewar conceded that "the one thing that is not taught explicitly by the '598 patent is the use of DNS." Claim 1's clauses 4 and 5 require "first level" and "second level" "domain name service (DNS) resolution." Although Dr. Dewar went on to express the opinion that these changes would have been obvious, he did not testify that they were present, even inherently, in the '598 reference. The prior art was not shown to suggest or use or contemplate the DNS as used by the MIT inventors.

Claim 1 requires identification of the content server of the distributed hosting framework during the DNS lookup. Witnesses for both sides agreed that this differs from ordinary use in the context of the internet, and that persons experienced in this field would readily so understand. It is seriously incorrect for this court to reconstruct the invention and then to invalidate the claims on its own findings, ignoring the evidence at the trial.¹

There was substantial evidence by which the jury could have found that all of the limitations of claims 1 and 3 are not present in the prior art. The acknowledged differences from the prior art render untenable the panel majority's restatement of the issues, as well as their resolution of the factual question of anticipation in order to invalidate the claims.

¹ The claims were construed by agreement before trial, and the only issues relate to validity and infringement. It is inappropriate to recharacterize the factual question of anticipation as one of claim construction, instead of deciding the appeal on the basis on which it was tried, and on the appropriate standard for review of jury verdicts.